Society of Automotive Engineers, Inc.
TWO PENNSYLVANIA PLAZA, NEW YORK, N.Y. 10000

AEROSPACE MATERIAL SPECIFICATION

AMS 5036E
Superseding AMS 5036D

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STEEL SHEET AND STRIP, ALUMINUM COATED
Low Carbon

1. ACKNOWLEDGMENT: A vendor shall mention this specification number and its revision letter in all quotations and when acknowledging purchase orders.

2. APPLICATION: Primarily for low stressed parts, such as brackets, clips, and sheathing, requiring corrosion resistance and oxidation resistance up to 1200 F (649 C).

3. COMPOSITION (Basis Steel):

	min	max
Carbon	--	0.10
Manganese	0.25	0.50
Phosphorus	--	0.04
Sulphur	--	0.05

3.1 Check Analysis: Composition variations shall meet the requirements of the latest issue of AMS 2259, paragraph titled "Carbon Steels, Sheet, Strip, Plate, and Flat Wire".

4. CONDITION: Aluminum killed, cold rolled, and then rerolled after coating.

5. TECHNICAL REQUIREMENTS:

5.1 Coating: Shall consist of a uniform layer of aluminum on each side of the steel sheet. The weight of this coating shall be 0.30 - 0.50 oz per sq ft as determined by the following triple spot test.

5.1.1 Specimen Preparation: Cut three specimens from the material to be tested. Each specimen shall be 5.06 sq in. in area (2.250 in. square, or equivalent rectangle, or 2.540 in. diameter) or weight losses (See 5.1.2) shall be corrected for the actual areas of specimens. Specimens shall be cut to represent the center and, where width permits, the two edges of the material. Specimens representing the edges shall be taken at diagonally opposite corners of the sample at least 4 in. from the end and, where width permits, at least 2 in. from the edges of the sample, as follows:

5.1.1.1 Material Over 12 In. Wide: Cut specimens from one flat sheet from each lot. For coiled material, cut a sample approximately 18 in. long by the full width of the coil from one end of one coil and cut the specimens from this sample.

5.1.1.2 Material 12 In. and Under in Width: Cut samples at least 18 in. long from one end of one to three coils from each lot. Cut specimens from the sample or samples, observing the end distance and, insofar as width permits, the edge distance requirements of 5.1.1.

5.1.2 Procedure: The three specimens shall be weighed individually to the nearest 0.005 gram. Immerse each specimen in hot 20% sodium hydroxide solution until action ceases. Remove, scrub under water, blot with a towel to remove most of the water, and immerse for 2 - 3 sec in cold concentrated hydrochloric acid. Remove, scrub under water, and reimmerse in the sodium hydroxide solution until action again ceases. Repeat this cycle until immersion in the sodium hydroxide shows no visible reaction. Remove, scrub, dry, and reweigh. The average weight loss in grams of the specimen is the weight of the coating in oz per sq foot.

5.2 Corrosion Resistance: Material shall show no evidence of corrosion of the basis steel when subjected Ø for 200 hr to salt spray test in accordance with the issue of ASTM B117 specified in the latest issue of AMS 2350. Corrosion of basis steel at cut edges shall be disregarded.

5.3 Bending:

5.3.1 Material shall withstand, without flaking or peeling of the coating, bending at room temperature through an angle of 180 deg around a diameter equal to twice the nominal thickness of the material, with axis of bend parallel to the direction of rolling.

5.3.2 Material shall withstand, without cracking of the basis steel, bending at room temperature flat on itself, with axis of bend parallel to the direction of rolling.

6. QUALITY: Material shall be uniform in quality and condition, clean, sound, and free from foreign materials and from internal and external imperfections detrimental to fabrication or to performance of parts.

7. TOLERANCES: Unless otherwise specified, tolerances, except for thickness, shall conform to all applicable requirements of the latest issue of AMS 2232; thickness tolerances shall be as follows:

Nominal Thickness Inch	Tolerance, Inch plus and minus
Up to 0.020, incl	0.003
Over 0.020 to 0.029, incl	0.004
Over 0.029 to 0.049, incl	0.005
Over 0.049 to 0.069, incl	0.006
Over 0.069 to 0.079, incl	0.007
Over 0.079 to 0.089, incl	0.008
Over 0.089 to 0.1875, excl	0.009

8. REPORTS:

8.1 Unless otherwise specified, the vendor of the product shall furnish with each shipment three copies of a report of the results of tests for chemical composition of the steel in each heat in the shipment. This report shall include the purchase order number, heat number, material specification number and its revision letter, thickness, size, and quantity from each heat.

8.2 Unless otherwise specified, the vendor of finished or semi-finished parts shall furnish with each shipment three copies of a report showing the purchase order number, material specification number and its revision letter, contractor or other direct supplier of material, part number, and quantity. When material for making parts is produced or purchased by the parts vendor, that vendor shall inspect each lot of material to determine conformance to the requirements of this specification, and shall include in the report a statement that the material conforms, or shall include copies of laboratory reports showing the results of tests to determine conformance.

9. IDENTIFICATION: Unless otherwise specified, each sheet and strip shall be marked as in 9.1 unless Ø purchaser permits a method from 9.2.

9.1 Each sheet and strip shall be marked on one face, in the respective location indicated below, with AMS 5036E, manufacturer's identification, and nominal thickness in inches. The characters shall be of Ø such size as to be clearly legible, shall be applied using a suitable marking fluid, and shall be capable of being removed in hot alkaline cleaning solution without rubbing. The markings shall have no deleterious effect on the material or its performance and shall be sufficiently stable to withstand normal handling. The specification number, manufacturer's identification, and nominal thickness shall be continuously line marked.

9.1.1 Flat Strip 6 In. and Under in Width: Shall be marked in one or more lengthwise rows of characters Ø recurring at intervals not greater than 3 feet.